PATENT APPLICATION

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Kenji INAGE et al.

Group Art Unit: 2652

Application No.: 09/911,408

Examiner: B. Miller

Filed: July 25, 2001

Docket No.: 110199

For: MAGNETORESISTIVE DEVICE AND METHOD OF MANUFACTURING SAME AND THIN-FILM MAGNETIC HEAD AND METHOD OF MANUFACTURING SAME

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to the November 17, 2004 personal interview with Examiner Miller, and in reply to the August 26, 2004 Office Action, reconsideration in light of the following remarks is respectfully requested. Claims 5, 10, 15 and 20-28 are pending.

I. Personal Interview

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Miller in the November 17, 2004 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

II. Request for Acknowledgement of Receipt of Priority Documents

The Office Action has not acknowledged the priority documents of Japanese Patent No. 2000-237365, filed August 4, 2000 and Japanese Patent No. 2001-213544 filed July 13, 2001. These priority documents were submitted on November 5, 2001. Accordingly, please acknowledge receipt of the priority documents and indicate that the requirements of 35 U.S.C. §119 has been satisfied.

III. The Claims Define Patentable Subject Matter

The Office Action rejects claims 5, 10, 15 and 20-28 under 35 U.S.C. §103(a) over Aoki (U.S. Patent No. 6,587,315). The rejection is respectfully traversed.

In particular, Aoki does not disclose or suggest a magnetoresistive device including a space between the two electrode layers is equal to or smaller than approximately 0.6 μm, as recited in independent claim 5, and similarly recited in independent claims 10, 15 and 20.

The Office Action at page 3 admits that Aoki remains silent as to a specific dimension. However, the Office Action asserts that "As Aoki et al discloses some 24 embodiments, having various spacing ratios with respect to the overlap, and as the electrode spacing is in direct relationship with the track width of the MR head, it would have been considered obvious to one having ordinary skill in the art at the time the invention was made to have provided this dimension through at least routine engineering experimentation and optimization." Applicants respectfully disagree.

The Office Action appears to be associating the width dimension T2 of the sensitive region E of Aoki with the claimed space between two electrode layers (hereinafter, "electrode spacing"). However, Applicants assert that in Aoki it is not the width dimension T2 but the optical read track width O-Tw that corresponds to the claimed electrode spacing. Aoki, in general, discloses at col. 18, lines 5-8 and lines 34-36 that O-Tw has a dimension which is the same as or larger than the magnetic read track width M-Tw (M-Tw has the same dimension as T2). While Aoki discloses some 24 embodiments, the above-mentioned disclosure is all that relates to the dimension of electrode spacing. Thus, nowhere does Aoki disclose or suggest making the electrode spacing equal to or smaller than approximately 0.6 μm, as recited in the claims.

The Office Action at page 3 further asserts that "absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims are considered to be within the level of ordinary skill in the art." Further at page 4, the Office Action asserts that "the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s)."

Applicants refer to pages 2-3 of the Request for Reconsideration filed on May 25, 2004, where Applicants cited specific passages in the application which describes the unexpected results. Specifically, the application in Fig. 16, and the specification at pages 29-32, discloses that Barkhausen noise is remarkably reduced when the electrode spacing falls within the range of approximately 0.6 μm and smaller.

The magnetoresistive device of type B disclosed in Fig. 16 and in the specification at pages 29-32 has such a structure that the bias field applying layers do not overlap the top surface of the MR element while the electrode layers overlap the top surface of the MR element. The results as shown in Fig. 16 disclose that in the range in which the electrode spacing (MRT1) is 0.6 μm or smaller, Barkhausen noise increases in the devices of types A, C and D as electrode spacing decreases. To the contrary in the device of type B, Barkhausen noise decreases in that range of electrode spacing.

Specifically, the claimed electrode spacing, i.e., "equal to or smaller than approximately 0.6 μm", serves to remarkably reduce Barkhausen noise. This feature provides unexpected results which is not disclosed nor suggested by Aoki, and is unobvious to one having ordinary skill in the art.

For reasons as discussed above, the claimed electrode spacing is unobvious to one having ordinary skill in the art, and furthermore, the specification shows that the claimed electrode spacing provides unobvious and unexpected results over Aoki. Therefore, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

IV. Provisional Double Patenting Rejection

The Office Action provisionally rejects claims 5, 10, 15 and 20-28 under the judicially created doctrine of obviousness-type double patenting over claims 3, 6, 9 and 12-16 of copending Application No. 09/911,407. The rejection is respectfully traversed.

In particular, MPEP §804 states that if the provisional double patenting rejection in one application is the only rejection remaining in that application, the Examiner should withdraw the rejection and permit the application to issue as a patent, thereby converting the provisional double patenting rejection in the other application into a double patenting rejection at the time the one application issues as a patent.

It is respectfully submitted that the provisional double patenting rejection is the only issue remaining for this application. Accordingly, withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 5, 10, 15 and 20-28 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Date: November 26, 2004

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